

WHAT IS CLAIMED IS:

1. A method of drilling a wellbore, comprising:

obtaining raw drilling data and information which collectively represents captured and
5 stored organizational drilling experience including drilling knowledge and drilling
experience;

providing an ontology of defined concepts and relationships which relate to and
describe drilling operations;

10 organizing said raw drilling data and information into a database in accordance with
said ontology and in a data processing format;

15 providing an interface constructed of data processing instructions in a data processing
format for receiving operator queries based upon user-specified criteria and for relevant or
analogous knowledge or experience as an output in a human-readable format;

loading said database and said interface into at least one data processing system;

20 receiving at least one user query relating to a particular drilling situation and in user-
specified criteria;

25 utilizing said at least one data processing system to retrieve from said database
relevant or analogous drilling knowledge or experience utilizing said ontology and said
user-specified criteria;

utilizing said interface to provide said relevant or analogous drilling knowledge or
experience to an operator;

30 utilizing said relevant or analogous drilling knowledge or experience to make drilling
decisions during drilling operations.

2. A method of drilling a wellbore, according to claim 1, wherein said ontology is a descriptive logic.

3. A method of drilling a wellbore, according to claim 2, wherein said ontology is a LOOM ontology.

4. A method of drilling a wellbore, according to claim 1, wherein said ontology is composed of a plurality of base concepts and base relationships which may be combined to construct more complex concepts and complex relationships.

5. A method of drilling a wellbore, according to claim 1, wherein said raw drilling information is organized in a subsumption hierarchy.

6. A method of drilling a wellbore, according to claim 1, wherein said raw drilling information is organized in accordance with at least the following concept categories:

historical experience;

wellbore environment factors; and

downhole equipment.

7. A method of drilling a wellbore, according to claim 6, wherein said historical experience includes a plurality of factors which describe a particular historical drilling situation and associated outcome.

8. A method of drilling a wellbore, according to claim 6, wherein said wellbore environment factors include at least one of the following factors:

drilling fluid properties;

rock properties; and

formation attributes.

9. A method of drilling a wellbore, according to claim 6, wherein said down hole equipment category includes at least one of the following items:

bottomhole assembly components; and

drill bit components.

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